HIGH AREAS.

I.—First noted to the north of Montana a. m. of the 1st. Its motion was east-southeast, and it was last noted off the middle Atlantic Coast p. m. of the 6th.

II.—Like the last, was first noted to the north of Montana a. m. of the 5th. Its motion was southeast, and it reached the south Atlantic Coast p. m. of the 9th.

III.—This was the only high of the month that originated off the Pacific Coast. First noted a. m. of the 9th. It had a very slow motion eastward, and was last noted in the middle Plateau Region a. m. of the 11th.

IV.—First noted in Manitoba a. m. of the 10th. Its motion was at first south of east, and then north of east. It was last noted in the Gulf of St. Lawrence a. m. of the 16th.

V.—First noted to the north of Montana a. m. of the 13th. Its motion was first south-southeast, reaching Texas a. m. of the 16th; thence it moved northeast, disappearing off Nova Scotia a. m. of the 19th.

VI.—First noted in Montana p. m. of the 16th. Its motion was southeastward, and it was last seen off the south Atlantic Coast a. m. of the 22d.

VII.—Was first noted to the north of Montana a. m. of the 21st. Its motion was a little south of east, and it was last noted off the Massachusetts coast a. m. of the 25th. The severest cold wave of the month accompanied this high. A temperature fall of 42° in twenty-four hours was reported from Williston, p. m. of the 21st.

VIII.—First noted to the north of Montana a. m. of the 25th. This was the fifth high of the month that came from this region. The motion, at first a little southeast, turned to north of east, and it was last noted in the Gulf of St. Lawrence a. m. of the 30th.

LOW AREAS.

I.—This storm is a continuation of No. XIV of the February REVIEW. While its velocity in February was over 32 miles per hour, in this month it was but a little above 8 miles. This slowing up was due, in part, to an obstruction from a nearly stationary high over Newfoundland. The path from New York a. m. of the 1st, was a little east of north, and it was last noted a. m. of the 5th off Nova Scotia.

II.—Began a. m. of the 2d, off the middle Pacific Coast. Its path was a little north of east, and it was last noted over Newfoundland a. m. of the 9th.

III.—First noted off the north Pacific Coast, a. m. of the 5th. Its motion was east-southeast, and it was last noted p. m. of the 10th in Virginia.

IV.—This storm gave rise to Storm Bulletin No. 2 of 1896, and many important facts may be gleaned from that. It was first noted in south Texas a. m. of the 10th, where the lowest pressure was 29.78 inches. It developed very rapidly in intensity and moved with a velocity of over 40 miles per hour. In thirty-six hours the pressure at the center had fallen to 29.01, and the next morning there was a still farther fall to 28.90. The path was toward the northeast, and it was last noted on the Gulf of St. Lawrence p. m. of the 12th. Very heavy rains accompanied this storm. On the morning of the 11th, 3.20 inches had fallen at New Orleans and 5.08 at Pensacola in twenty-four hours. A wind of 72 miles per hour was reported from Block Island p. m. of the 11th.

V.—First noted in the southern Plateau Region a. m. of the 13th. Its path was first east, reaching the Mississippi Valley p. m. of the 15th; thence it moved northeast, disappearing in the Gulf of St. Lawrence p. m. of the 17th.

VI.—This storm originated to the north of Montana p. m. of the 15th. The path was first in a southeast direction, reaching Louisiana a. m. of the 18th; thence the direction was northeast, and it was last seen in the Gulf of St. Lawrence a. m. of the 21st. A rainfall of 3.52 inches was reported from New Orleans p. m. of the 18th, and a wind velocity of 68 miles from New York p. m. of the 19th. This storm also gave rise to a special Storm Bulletin, No. 3, which gives many additional facts.

VII.—Was first noted to the north of Montana a. m. of the 19th. Its path was eastward, and it was last seen over Newfoundland p. m. of the 22d.

VIII.—Like the last two this storm was first noted to the north of Montana p. m. of the 23d. The path was eastward, disappearing in the Gulf of St. Lawrence p. m. of the 27th.

IX.—First noted to the north of Montana p. m. of the 25th. It had a very slow motion a little south of east, and disappeared to the north of Lake Superior p. m. of the 29th.

X.—First noted in north Montana a. m. of the 30th. It moved southeast and was central in Iowa p. m. of the 31st. Its further course will be described in the April REVIEW.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	54	116	6, p. m.	37	74	2,890	5.5	525	21.9
II	5, a. m.	51	115	9, p. m.	29	79	2,440	4.5	541	22.5
III	8, p. m.	43	125	11, a. m.	41	111	970	2.5	388	16.2
IV	10, a. m.	53	105	16, a. m.	47	60	3,300	6.0	550	22.9
V	13, a. m.	52	117	19, a. m.	46	59	4,050	6.0	675	28.1
VI	16, p. m.	48	112	22, a. m.	32	77	2,920	5.5	530	22.1
VII	21, a. m.	53	109	25, a. m.	41	69	2,480	4.0	620	25.8
VIII	25, a. m.	52	108	30, a. m.	46	59	3,410	5.0	683	28.5
Sums							22,460	39.0	4,512	18.80
Mean of 8 paths									564	23.5
Mean of 39 days									576	24.0
Low areas.										
I	1, a. m.	42	75	5, a. m.	45	60	800	4.0	199	8.3
II	2, a. m.	42	125	9, a. m.	48	56	4,030	7.0	576	24.0
III	5, a. m.	48	128	10, p. m.	38	79	2,960	5.5	539	22.5
IV	10, a. m.	27	99	12, p. m.	48	64	2,430	2.5	972	40.5
V	13, a. m.	37	111	17, p. m.	47	59	3,360	4.5	747	31.1
VI	15, p. m.	52	115	21, a. m.	49	60	4,130	5.5	751	31.3
VII	19, a. m.	53	116	22, p. m.	47	55	2,870	3.5	804	33.5
VIII	23, p. m.	52	113	27, p. m.	50	63	3,100	4.0	774	32.3
IX	25, p. m.	53	114	29. p. m.	50	85	1,830	4.0	459	19.1
X	30, a. m.	49	109	31, p. m.	42	92	1,310	1.5	872	36.3
Sums							26,760	42.0		
Mean of 10 paths									669.3	27.9
Mean of 42 days									637.1	26.5

LOCAL STORMS.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

Atmospheric conditions favorable to the development of local storms obtained on the 18th, 28th, and 29th. On the first-named date three small frame houses and one frame church were demolished by the wind at Baton Rouge, La. Earlier in the day a schoolhouse was overturned and four dwellings were wrecked near Beaumont, Tex. Several people were injured, but no lives were lost.

On the 28th severe local storms were reported from Alton, Ill., near Westalton, St. Charles County, Mo., and Oregon, Ill. Some tornado characteristics were present, especially at Oregon, Ill. No lives were lost, and the property loss was comparatively small, $6,000.

On the next day a severe storm was reported in the vicinity of Rural Retreat, Va. One life was lost, and the loss to standing timber, fences, and buildings was estimated at $10,000.

The casualties during the month due to violent storms, lightning, and floods, were as follows: Violent storms, 1; lightning, 5; drowning, 8.

TEMPERATURE OF THE AIR.

[In degrees Fahrenheit.]

The mean temperature is given for each station in Table

II, for voluntary observers. Both the mean temperatures and the departures from the normal are given in Table I for the regular stations of the Weather Bureau.

The *monthly mean temperatures* published in Table I, for the regular stations of the Weather Bureau, are the simple means of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

The *regular diurnal period* in temperature is shown by the hourly means given in Table V for 29 stations selected out of 82 that maintain continuous thermograph records.

The *distribution of the observed monthly mean* temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart IV; the lines are drawn over the Rocky Mountain Plateau Region, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The *highest mean temperatures* were: Key West, 70.6; Jupiter, 67.6; Yuma, 65.1; Corpus Christi, 63.4.

The *lowest mean temperatures* were: In the United States: Moorhead, 14.4. In Canada: Winnipeg, 9.6.

As compared with the normal for March the mean temperatures for the current month were in excess on the coast of California and some Plateau stations, but elsewhere generally deficient. The greatest excesses were: Elpaso, 2.3; Baker City, 1.9; Idaho Falls, 1.4; Los Angelos and Eureka, 1.3. The greatest deficits were: Huron, 7.8; Williston, 6.9; Lexington, 6.7; North Platte, 6.6; Pittsburg, 6.4; Havre, Moorhead, and Parkersburg, 6.1; Cincinnati, 6.0.

Considered by districts the mean temperatures for the current month show departures from the normal as given in Table I. The greatest positive departure was: South Pacific, 1.2. The greatest negative departures were: Northern Slope, 5.5; Ohio Valley and Tennessee, 4.8; lower Lake, 4.4.

The *years of highest and lowest mean temperatures* for March are shown in Table I of the REVIEW for March, 1894. The mean temperature for the current month was not the highest on record at any regular station of the Weather Bureau. It was the lowest on record at Northfield, 19.9; Woods Hole, 31.6; Harrisburg, 32.8; Parkersburg, 35.2; Lexington, 37.7; Port Angeles, 39.6; Tatoosh Island, 42.0.

The *maximum and minimum temperatures* of the current month are given in Table I. The highest maxima were: 99, Yuma (25th); 92, Phœnix (25th); 90, Abilene (21st), and San Antonio (31st); 89, Los Angeles (24th), Elpaso (25th); 88, Savannah and Jacksonville (31st). The lowest maxima were: 44, Sault Ste. Marie (21st); 48, Eastport (26th), Moorhead (24th); 49, Marquette (30th); 50, Northfield (1st), Oswego (30th). The highest minima were: 54, Key West (21st); 45, Galveston (16th); 44, Port Eads (frequently); 43, Jupiter (21st); 42, Corpus Christi (16th); 41, New Orleans (20th), San Diego (4th). The lowest minima were: —32, Havre (3d); —28, Moorhead (13th); —18, Helena (3d); —16, Sault Ste. Marie and Huron (13th), and Williston (frequently).

The *years of highest maximum and lowest minimum temperatures* are given in the last four columns of Table I. During the current month the maximum temperatures were the highest on record at: Savannah and Jacksonville, 88; Montgomery, 87; Meridian, 85; Elpaso, 89. The minimum temperatures were the lowest on record for this month at: Northfield, —15; Harrisburg, 6; Moorhead, —28; Lander, —22; Idaho Falls, —15; Tatoosh Island, 24; Port Angeles, 18; Fort Canby, 22; Astoria, 24; Portland, Oreg., 20; Roseburg, 18; Eureka, 29; Redbluff, 26; San Francisco, 33.

The greatest daily range of temperature and the extreme monthly ranges are given for each of the regular Weather Bureau stations in Table I, which also gives data from which may be computed the extreme monthly ranges for each station. The largest values of the greatest daily ranges were: Dodge City, 53; North Platte, 50; Pueblo, 49; Moorhead, 47; Huron, 46; Pierre, and Amarillo, 45. The smallest values were: Tatoosh Island, 14; Key West, 15; Galveston, 16; Block Island, 18; Point Reyes Light, 19; Port Eads, 20. Among the extreme monthly ranges the largest values were: Havre, 96; Huron, 90; Miles City, 89; North Platte, 88; Pierre, 86. The smallest values were: Galveston, 27; Key West, 28; Tatoosh Island, 31; Port Eads and Neahbay, 33; Nantucket and Hatteras, 34.

The *accumulated monthly departures* from normal temperatures from January 1 to the end of the current month are given in the second column of the following table, and the averages are given in the third column. The latter may serve for comparison with the departures of current conditions of vegetation from the normal condition.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
West Gulf	+ 0.6	+ 0.2	New England	— 4.9	— 1.6
Upper Lake	+ 4.5	+ 1.5	Middle Atlantic	— 5.8	— 1.9
North Dakota	+ 6.0	+ 2.0	South Atlantic	— 5.6	— 1.9
Upper Mississippi	+ 6.9	+ 2.3	Florida Peninsula	— 8.8	— 2.9
Missouri Valley	+10.0	+ 3.3	East Gulf	— 6.9	— 2.3
Northern Slope	+11.1	+ 3.7	Ohio Valley and Tenn.	— 4.1	— 1.4
Middle Slope	+11.3	+ 3.8	Lower Lake	— 4.7	— 1.6
Abilene (southern Slope)	+ 5.6	+ 1.9			
Southern Plateau	+ 6.0	+ 2.0			
Middle Plateau	+10.9	+ 3.6			
Northern Plateau	+21.0	+ 7.0			
North Pacific	+ 4.7	+ 1.6			
Middle Pacific	+ 6.7	+ 2.2			
South Pacific	+ 9.0	+ 3.0			

The limit of freezing weather is shown on Chart VI by the isotherm of minimum 32°, and the approximate limit of frost by the isotherm of minimum 40°. These minimum temperatures are such as occur within the thermometer shelters of the Weather Bureau stations.

MOISTURE.

The *quantity of moisture* in the atmosphere at any time may be expressed by the weight of the vapor coexisting with the air contained in a cubic foot of space, or by the tension or pressure of the vapor, or by the temperature of the dew-point. The mean dew-points for each station of the Weather Bureau, as deduced from observations made at 8 a. m. and 8 p. m., daily, are given in Table I.

The *rate of evaporation* from a special surface of water on muslin at any moment determines the temperature of the wet-bulb thermometer, but a properly constructed evaporometer may be made to give the *quantity* of water evaporated from a similar surface during any interval of time. Such an evaporometer, therefore, would sum up or integrate the effect of those influences that determine the temperature as given by the wet bulb; from this quantity the *average humidity of the air* during any given interval of time may be deduced.

Measurements of evaporation within the thermometer shelters are difficult to make so as to be comparable at temperatures above and below freezing, and may be replaced by computations based on the wet-bulb temperatures. The absolute amount of evaporation from natural surfaces not protected from wind, rain, sunshine, and radiation, are being made at a few experimental stations and will be discussed in special contributions.

Sensible temperatures.—The sensation of temperature experienced by the human body and ordinarily attributed to the